

**SUSTAINABLE SUPPLY CHAIN MANAGEMENT PRACTICES  
AND THE PERFORMANCE OF UNITED NATIONS AGENCIES  
IN NAIROBI, KENYA**

**VICTORIA MWIKALI MULWA**

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## DECLARATION

### STUDENT'S DECLARATION

This project is my original work and has never been submitted for a degree in any other University or college for examination/ academic purposes.

**Signature:** .....**Date:**.....

VICTORIA MWIKALI MULWA

D61/68385/2013

### SUPERVISOR'S DECLARATION

This research project has been presented for examination with my approval as the University Supervisor.

**Signature**.....**Date**.....

ONSERIO NYAMWANGE

LECTURER,

DEPARTMENT OF MANAGEMENT SCIENCE,

UNIVERSITY OF NAIROBI.

## **DEDICATION**

I dedicate this project to my beloved husband Keneth Muthama and sweet daughter Natalie Angel Wavinya for their patience, understanding and support as I persued my MBA. I also dedicate this project to my beloved parents Dr. Angeline Mulwa and Prof. Justus Munyoki for their encouragement and support during my studies.

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Thank you all. May the Almighty God bless you abundantly.

## **ABSTRACT**

This study set out to establish the influence of Sustainable Supply Chain Practices on the performance of UN Agencies in Nairobi, Kenya. The study was guided by the following research objectives; to establish the SSCP adopted by UN agencies in Kenya and the extent to which these practices have been adopted; to determine the relationship between SSCP adopted by UN agencies and their performance; to establish the challenges faced by UN agencies in implementing SSCP. The study adopted a correlation cross-sectional research design in collecting data from the respondents. The study involved a census of the UN Agencies in Nairobi. The primary tool for collecting data was questionnaires which were administered by the researcher to allow for further probing on issues that were not clear to the respondents. The data was analyzed using descriptive statistics, regression analysis, correlation analysis and factor analysis with the aid of SPSS 20.0. The findings show that stakeholder engagement, having a diverse supplier network, ensuring suppliers have a sustainable policy, good working conditions for employees, employee health and safety and ethical sourcing, production and distribution were highly adopted. The findings also show that through adoption of SSC practices, UN agencies were able to get new market opportunities, increased their operational and production efficiencies, reduced their costs and improved the organizations corporate image. Funding limitation and delays, procurement delays, strains in control, and staff resistance to adopting change were shown to be some of the challenges faced by UN Agencies. It is suggested that training of employees, community training and having a sustainable policy would help in curbing the challenges. It is evident from the correlation analysis that adopting SSC practices had an effect on the performance of these organizations.

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## **LIST OF ABBREVIATIONS**

**CIPS**–Chartered Institute of Procurement and Supply

**CSCMP**– Council of Supply Chain Professionals

**CSV**–Creating Social Value

**GSCM**–Green Supply Chain Management

**SC**–Supply Chain

**SCM**–Supply Chain Management

**SPSS**– Statistical Package for Social Sciences

**SSC**–Sustainable Supply Chain

**SSCF**–Sustainable Supply Chain Foundation

**SSCM**–Sustainable Supply Chain Management

**SSCP**–Sustainable Supply Chain Practices

**UN**–United Nations

**UNESCO**–United Nations Economic and Social Council

**UNGC**–United Nations Global Compact

**UNGCA**–United Nations Global Compact Accenture

**UK**–United Kingdom

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Over the past 10 years, environmental issues have steadily encroached on businesses' capacity to create value for customers, shareholders, and other stakeholders. Globalized workforces and supply chains have created environmental pressures and attendant business liabilities. The rise of new world powers, notably China and India, has intensified competition for natural resources, especially oil. Externalities such as carbon dioxide emissions and water use are fast becoming material—meaning that investors consider them central to a firm's performance and stakeholders expect companies to share information about them (UNGC-A, 2013).

It is important to note however, that the current world consumption and production levels are 25 percent higher than the earth's sustainable carrying capacity (Schaefer et. al, 2006). Environmental degradation, global poverty, lack of human rights, far-reaching health deficits and corporate governance resulted in sustainable supply chain management (SSCM) to emerge as key enabler that could push organization to focus on alleviating environmental issues, providing economic and social benefits (Kovacs, 2014). Developing sustainable business practices is not only critical to the future of a company, but also for the benefit of future generations. Sustainable practices are leading organizations to sustainable growth, both profitably and responsibly.

Porter & Kramer (2011) proposed a Creating Social Value (CSV) theory which suggests that we can create economic value in a way that also creates value for society, by addressing its needs and challenges. The suggestion is that by reconnecting company success with social progress we can achieve the next phase of global economic growth. This has to do with sustainability whereby For example, if a company develops cleaner ways of emitting its waste, it can reduce its tax burden (private welfare), its carbon footprint (public welfare), and potential future emission accidents (tort reduction). Porter and Kramer (2011) define shared value as the “policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates”. Porter and Kramer (2011) also mention areas where CSV can be particularly helpful including energy use, employee skills, worker safety, and water use. It is therefore evident that sustainability is an emerging issue and organizations are concerned about sustainability now more than ever.

### **1.1.1 Sustainable Supply Chain Management Practices**

Seuring and Muller (2008) merge the definitions for SCM and sustainability and define SSCM as “the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development i.e. economic, environmental and social into account which is derived from customer and stakeholder requirements. According to the Sustainable Supply Chain Foundation (SSCF), Sustainable Supply Chain Management involves integrating environmentally and financially viable practices such as recycling, refurbishing, waste management etc. into the complete supply chain lifecycle, from product design and development, to material selection, (including raw material extraction or agricultural production), manufacturing, packaging, transportation, warehousing, distribution, consumption, return and disposal. All supply chains can be optimized using sustainable practices. Sustainability in the supply chain encapsulates a number of different priorities: environmental stewardship, conservation of resources, reduction of carbon footprint, financial savings and viability and social responsibility.

Sustainable development meets the needs of people today without compromising the ability of people in the future to meet their needs (CIPS, 2014). Sustainability integrates social, environmental, and economic systems. Social aspects include following applicable laws and international treaties; using open and transparent participatory processes that actively engage relevant stakeholders, establish rights and obligations, and emplace a long-term sustainability plan with periodic monitoring; and ensuring decent wages and working conditions, the safety of workers, and workers’ rights to organize and collectively bargain (Mukanga, 2011). Environmental sustainability occurs when processes, systems and activities reduce the environmental impact of organizations facilities, products and operations. Economic sustainability is used to define strategies that promote the utilization of socio-economic resources to their best advantage. A sustainable economic model proposes an equitable distribution and efficient allocation of resources. The idea is to promote the use of those resources in an efficient and responsible way that provides long-term benefits and establishes profitability (UNGC-Accenture, 2013)

Kovacs (2014) opines that Supply chain sustainability is a holistic perspective of supply chain processes and technologies that go beyond the focus of delivery, inventory and traditional views of cost. This emerging philosophy is based on the principle that socially responsible products and practices are not only good for the environment, but are important for long-term profitability.

Sustainability therefore is a business strategy that drives long-term corporate growth and profitability by mandating the inclusion of environmental and social issues into the business model. It is intended to generate a maximum increase in company, consumer and employee value by embracing opportunities and managing risks derived from environmental and social developments.

### **1.1.2 Performance of Humanitarian Organizations**

Huber (1991) describes the role of humanitarian organizations as that of saving lives, alleviating suffering and maintaining human dignity during and after the occurrence of man-made crises and natural disasters as well as to prevent and strengthen preparedness for occurrence of such calamities. The rationale underlying humanitarian aid is to help people in need. The SPHERE standards (2011) state two principles guiding humanitarian operations: “those affected by disaster or conflict have a right to life with dignity and, therefore, a right to assistance; and second, that all possible steps should be taken to alleviate human suffering”. However, humanitarian aid has been criticized for its ineffectiveness at a macro-economic level and even condemned for constraining development (Moeiny, 2011).

Performance management is a series of organizational processes and applications designed to execute organizational strategy (Ioannou, 2011). A disaster response operation involves trade-offs of speed, cost and accuracy with regard to the type of goods that are delivered and their quantities. Balancing these trade-offs requires a means of measuring supply chain performance. Performance measurements are meant to mean the process of analyzing and reporting information on performance, and they exist to clarify whether an organization or operation meets the set performance objectives. Various performance measurements have been suggested for humanitarian organizations such as output, resources, flexibility, customer service, financial efficiency and donation to delivery time (Abidi and Klumpp, 2013).

According to McLanchlin, Larson and Khan (2009), humanitarian supply chains tend to be unstable and prone to political and military influence, and inefficient due to lack of joint planning and inter-organizational collaboration. However, humanitarian supply chain management does not only deal with delivering goods, materials or information to the point of consumption for the purpose of alleviating suffering of vulnerable people, but also need to manage and give value to donors and other stake holders. In order to build value, humanitarian organizations have to incorporate sustainable practices in their operations (Malerba, 2013).

### **1.1.3 United Nations Agencies in Kenya**

The world is facing an increase in humanitarian crisis due to climate change and terrorism. This calls for new supply chain strategies in handling the volatile and changing demands that these humanitarian disasters present. In recent years, humanitarian organizations have come under immense pressure from donors, pledging millions in aid and goods, to prove that they are meeting objectives in the most efficient and effective way.

There are many humanitarian organizations operating in Kenya, some of which are purely originated and managed by Kenyans while others have originated from foreign countries and managed by foreigners as well (Kariuki, 2010). Moeiny (2011), observed that the humanitarian organizations in Kenya rely on donor funding to finance their operations and hence an enormous accountability responsibility

The primary purpose of the United Nations is "to achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character. Numerous bodies have been created to work towards this goal, primarily under the authority of the General Assembly and United Nations Economic and Social Council (ECOSOC). The United Nations has been in the lead in advocating for sustainable supply chain practices. This study therefore seeks to explore which sustainable supply chain practices the UN has adopted and to further describe the effect of the practices on overall United Nations competitiveness. The study will focus on the three components of sustainability: social, environmental and economic components.

The United Nations has worked since its founding to achieve a shared, secure and sustainable future for all of the world's people. The vision and aspirations of the first United Nations members in 1945, as they set out to be the "architects of a better world," remains a beacon today, not just for governments, but also for the thousands of companies and civil society organizations that have become key partners in tackling our world's most pressing challenges (UNGC, 2007). The UN is committed to designing sustainability into their products and processes, and helping customers and suppliers do the same. These and other sustainable practices are helping UN make a bigger impact in the marketplace, while leaving a smaller footprint in the world.

## **1.2 Statement of the Problem**

Sustainability is the ultimate goal of all development aid and is the ability of host country entities to continue to apply new and evolving capacities and sustain achievements through providing reliable resources generated from a country's own efforts, (Kopinak, 2013). In the recent years, there has been considerable interest on the humanitarian sector.

The United Nations and its agencies form the biggest group of humanitarian organizations in the world today. Its commitment to designing sustainability into their products and processes, and helping its customers and suppliers do the same helps the UN make a bigger impact in the marketplace, while leaving a smaller footprint in the world. This therefore has made researchers and scholars to gain an interest in studying the operations of the United Nations and transfer some of the lessons learnt into their industries. A number of studies have been carried out concerning SCM and sustainability in the humanitarian sector.

Mukanga (2011) conducted a study to establish the Sustainability strategies adopted by international NGOs based in Nairobi and found that the organizations adopted strategies such as; engaging in consultancy work, adopting a strategic plan, innovativeness, engaging in income generating activities, engaging in partnerships and collaboration, capacity building & empowerment of communities, transparency, good management practice, staff training and development and better pay.

Abdifatah (2012) also carried out a study on Supply Chain Management Practices and their impact on performance among humanitarian organizations in Kenya. The findings from this

study indicated that maintaining good supplier relation, effective and efficient internal operations, continuous improvement, flexible production processes, use of technology to speed up humanitarian work, inter-organization integrations and simplicity in internal operations are among the practices prevalent among humanitarian organizations in Kenya.

Elsewhere, a study conducted by Walker and Jones (2012) on Sustainable Supply Chain Management across the UK private sector found that most UK private sector companies have a SSCM policy in place which is reviewed annually. It also established that some barriers to SSCM such as strategic issues, reputational risk, SSCM processes not being robust enough which the organizations have had to deal with. Further, it also established some of the enablers of SSM such as leadership, internal integration, academic involvement, improved industry performance etc.

In a study by Kinyua (2013) which sought to establish the status of humanitarian response and factors associated with its performance in humanitarian organizations in Kenya, found that most humanitarian operations are handled by international organizations and they spend up to one third of their funding to supply chain commitments. A majority of the humanitarian organizations were also found to have performing supply chains which delivered goods and services in the right quantities, to the targeted beneficiaries and in a timely manner. The main reasons for non-performance were funding limitations and delays, environmental challenges especially during the rainy seasons, procurement delays, poor coordination and turf wars between grantees, sub-grantees and implementers.

Besides, Lianza (2013) conducted a study which sought to establish the relationship between SCM integration and performance of international humanitarian organizations. The study established that SCM integration influenced the performance of humanitarian organizations. It was also established that most of the international humanitarian organizations in East Africa have integrated their SCM functions. The concept, among other benefits, was also found to lead to faster delivery and efficient goods, works and services to the beneficiary.

Munguti (2013), also conducted a study which sought to establish the supply chain management practices in disaster response among international humanitarian organizations in Kenya found out that most humanitarian organizations in Kenya use SCM practices such as assessment of the

needs of the vulnerable population, ordering of services and other materials, management of donations to an optimal level, practices that promote best warehousing, documentation, cataloging, consolidation and recording practices, practices that enhance adequate flow of products, enhance flow of finances and cash and inventory management practices.

Kovacs (2014), conducted a study to establish the perspectives of humanitarian supply chains and in his findings, there are four perspectives of sustainability which are the societal perspective, beneficiary perspective, supply chain perspective and program perspective. He also established that in the humanitarian setting, donors have sustainability as a goal as they carry out their operations.

It is evident from the studies that there has been very limited focus on sustainability issues especially within the humanitarian aid sector yet this a major issue today. Therefore this study was aimed at filling this gap and consequently to establish the SSCMP that have been adopted by humanitarian organizations with a specific interest in the UN agencies in Kenya. Further, the study aimed to establish whether adopting SSCMP affects the performance of these organizations and the challenges that these organizations encountered in their bid to implement sustainable supply chain practices.

### **1.3 Research Objectives**

This study was guided by the following study objectives:

1. To establish the SSCMP adopted by UN agencies in Kenya and the extent to which these practices have been adopted.
2. To determine the relationship between SSCMP adopted by UN agencies and their performance.
3. To establish the challenges faced by UN agencies in implementing SSCMP.



#### **1.4 Value of the Study**

The results from the study can be instrumental to the UN agencies and other humanitarian organizations in linking their sustainable supply chain performance to their competitiveness. The results can also be replicated by other Kenyan organizations which may not necessarily be humanitarian in nature since sustainability cuts across all sectors in business and it affects their competitiveness in the same way.

The study has also added to the existing body of knowledge on sustainability and recommended areas for further research and analysis by academicians in the future in order to draw important conclusions by supply chain students and practitioners.

This area has not been widely looked into and therefore researchers and academicians in institutions of higher learning will use this study to gather information and gain insight on the issues of sustainability practice in supply chain management and its contribution to the economy.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter focused on literature review conducted by the researcher. It included a review of various studies carried out previously regarding sustainability issues and the effect they have had on the performance of organizations with a specific interest on humanitarian organizations. The subsections of this chapter include a broader view of sustainable supply chain management practices, SSCM practices and organizational performance, the impacts of sustainability practices, the benefits of sustainable supply chain practices and the challenges in implementing SSC practices. The chapter also provides a comprehensive conceptual framework derived from theory reviewed.

### **2.2 Sustainable Supply Chain Management Practices**

SCM involves the planning and management of all activities involved in sourcing and procurement, conversion, and logistics management activities. It includes coordination and collaboration with channel members such as suppliers, intermediaries, third-party service providers, and customers (CSCMP, 2005).

Seuring and Muller (2008) have defined SSCM as “the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements. Typically, sustainable supply chain management is now considered to be the ‘best way’ to improve efficiency in supply chain (Seuring and Muller 2008).

A focus on supply chain is a step towards the broader adoption and development of sustainability, since the supply chain considers the product from initial processing of raw materials to delivery to the customer. The practical application of sustainable supply chain management has been growing in the recent years. Authors argue that it is important to integrate sustainability issues into the aspects of supply chain management. There is strong evidence that

for achieving sustainability performance, some aspects and practices in the supply chain have to be changed and managed in a different way (Ashby, Leat and Hudson, 2012;Taticchi, Tonelli and Pasqualino 2013).

Seuring (2014) observed that SCM incorporates a variety of concepts such as environmental or green SCM, which involves firms seeking to minimize negative environmental impacts in their supply chains. In addition, it also includes the consideration of social issues in the supply chain such as ensuring employees have decent working conditions or ensuring goods are sourced, manufactured and distributed ethically to the consumers along the supply chain. Moreover, there is also the economic aspect of SCM which may include buying from local suppliers to support local economic regeneration (Seuring, 2014).

A number of views in literature have addressed and brought to the lime light aspects of sustainable supply chain practices such as corporate social responsibility, sustainable supply network management, supply chain environmental management, green purchasing strategies (Min and Galle, 1997), environmental purchasing (Zsidisin and Siferd, 2001), green marketing, environmental marketing (Sheth and Parvatiyar, 1995), environmental marketing management and environmental product differentiation, reverse logistics, sustainability labeling schemes, environmental management (Hoffman, 2000), Life-cycle assessments and ISO 14000-certifications (ISO, 2007). Other generic aspects connected to sustainable business practices and theories are product returns, source reduction, recycling, material substitution, reuse of materials, waste disposal, refurbishing, repair and re-manufacturing (Stock, 1998).

Green manufacturing can lead to reduced raw material costs, production efficiency, low environmental and occupational safety expenses as well as improved corporate image. It is designed to minimize the environmental impact in the manufacturing processes of products (Wamalwa, 2014). Firms can effectively practice green manufacturing practices through the use of solar energy, recycling of raw materials and utilize biodegradable energy sources in their manufacturing operations (Amemba et al., 2013). Reverse logistics focuses mainly on the return or take-back products and materials from the point of consumption to the forward supply chain

for the purpose of recycling, reuse, remanufacture, repair, refurbishing, or safe disposal of the products and materials (Wamalwa, 2014).

## **2.3 Theoretical Framework**

### **2.3.1 Systems Theory**

This theory suggests that the ecological, social and economic systems are a group of interrelated, interacting or interdependent systems forming a complex whole. Environmentalists, social scientists and economists have laid a basis of an integrative theory of systems change which is based on the idea that human systems and nature systems, as well as social ecological systems are interlinked in endless adaptive cycles of growth, accumulation, restructuring, and renewal within hierarchical structures ( Ashby and Hudson, 2012)

Subjects like complexity, self-organization, connectionism and adaptive systems had already been studied in the 1940s and 1950s. Gold, Seuring and Beske (2010) observed that the systems view is based on the idea that all phenomena can be viewed as a web of relationships among elements, or a system. Second, all systems have common patterns, behaviors and properties that can be understood and used to develop greater insight into the behavior of complex phenomena.

The concepts of sustainability and sustainable development are analyzed from a systems perspective. Sustainability has three components which are greatly interdependent and whose relationship can be easily explained using the systems theory. The economic component, social component and environmental component are interrelated just like a system in order to achieve sustainability in an organization.

## **2.4 SSCM Practices and Organizational Performance**

According to Kinyua (2013), performance refers to the degree of fulfilling the requirement of a job and it is measured in terms of results. It can also be defined as the ability to perform or capacity to achieve desired results. Neeley et al., (1995) defines performance measurement as the process of quantifying efficiency and effectiveness of an action. It is the process whereby an

organization establishes parameters within which the organization reaches its desired goals. Sustainable supply chains performance measurement is threefold. It is not only measured according to economic performance but also according to the environmental and social performance (Beske, 2012).

For humanitarian organizations, their main performance expectation is that of saving lives (Kovacs and Spens, 2007), decrease human suffering and contribute to development (ICRC, 2010). Donors generally are interested in the performance of the programs they support as well as their societal impact. Although aid effectiveness is the focus of all humanitarian and development activity, assessing the economic impact of humanitarian aid is tricky from an organizational, and especially a supply chain perspective (Kovacs, 2014). Most of the performance expectations on humanitarian aid can also be understood as sustainability expectations. Saving lives and decreasing suffering correspond with social responsibility, while contributing to development corresponds with longer term aims of development, especially if combined with ecological aspects of sustainable development. Literature often differentiates between economic, ecological and social dimensions of sustainability following the triple bottom line model.

In a study by Ioannou (2011) on impact of corporate sustainability on organizational performance, there was evidence that companies that focus on sustainability issues outperform their counterparts in the long term both in the stock market and accounting performance. Hasan (2012) provides some of the SSCM practices that companies may implement to improve their performance. These SSCM practice dimensions and items have been based on previous literature that addressed various aspects of SSCM. A description of the GSCM practices and performance constructs is given below: There is agreement within the literature that environmental management practices in the organization are a key to improve enterprise performance.

**Table 2.1 Environmental Management Practices**

<p>Environmental management practices within the organization</p>	<ol style="list-style-type: none"> <li>1. Commitment of GSCM from senior and middle level managers</li> <li>2. Total quality environmental management</li> <li>3. Environmental compliance and auditing program</li> <li>4. ISO 14000 certification</li> </ol>
<p>SSCM practices relating to suppliers and customers</p>	<ol style="list-style-type: none"> <li>1. Cooperation with suppliers for environmental objectives</li> <li>2. Supplier's ISO14000 certification</li> <li>3. Company-wide environmental audits</li> <li>4. Environmental management for suppliers internal management</li> <li>5. Provide training to build supplier environmental management capacity</li> <li>6. Cooperation with customers for eco-design and cleaner production</li> <li>7. Cooperation with customers for green packaging</li> </ol>
<p>Environmentally conscious product and process design</p>	<ol style="list-style-type: none"> <li>1. Environmentally friendly raw material</li> <li>2. Design of products for reduced consumption of material and energy</li> <li>3. Design of products for reuse, recycle, recovery of material</li> <li>4. Design of products to avoid or reduce use of hazardous products and/or their manufacturing process</li> <li>5. Optimization of process to reduce solid/liquid waste and emission</li> </ol> <p>Use reverse logistics</p>

*Note.* Adapted from Sustainable SCM Practices and Operational Performance, in *The American Journal of Industrial and Business Management* by M. Hasan (2013). Vol 3 No 1, 2013, pp.42-48.

**Table 2.2 Environmental and operational performance constructs.**

Environmental performance	<ol style="list-style-type: none"><li>1.Reduction of solid/liquid waste and emissions</li><li>2.Reduction of consumption for hazardous/toxic materials</li><li>3.Reduction of frequency of environmental accidents</li><li>4.Reduction of electricity usage</li></ol>
Operational performance	<ol style="list-style-type: none"><li>1.Cost savings and increased efficiency</li><li>2.Product quality improvement</li><li>3.Increase in market share</li><li>4.New market opportunities</li><li>5.Enhance employee motivation and Increase in sales</li></ol>

*Note.* Adapted from Sustainable SCM Practices and Operational Performance, in *The American Journal of Industrial and Business Management* by M. Hasan (2013). Vol 3 No 1, 2013, pp.42-48.

## **2.5 Impacts of Sustainability**

The Triple Bottom Line is a concept that brings together three important dimensions: the economic; the social and the environmental dimensions. Elkington (1998) defines TBL as a measure of supply chain performance that addresses not just profits, but also supply chain impacts on people, profits and the planet. A triple bottom line measures a company's economic value, the company's degree of social responsibility, and the company's environmental responsibility (Elkington, 1998).

The financial performance of the companies in the supply chain is affected by the environmental performance in number of ways: by minimizing hazardous and non-hazardous waste the utilization of natural resources improve, the operating costs are reduced and the productivity is improved. Marketing advantages which may also be realized include improved revenue, increased market share and new market opportunities (Seuring and Beske, 2014).In a study

conducted by Lemmet (2012), a number of direct economic impacts have been documented. These include support to small business activity in Scotland, support to local industries in Costa Rica, and financial savings done by the state of São Paulo, Brazil. Indirect impacts were demonstrated as well such as tax benefits linked to the employment of disabled people.

The reduction of environmental impacts can be influenced by two general approaches: first, while relying on new, energy efficient technology; second, relying on companies to restructure their processes in a more sustainable way (Zsidisin et al, 2001). Welford (1999) state that techniques such as life cycle assessment can be used for assisting in the determination of product design and minimization of its environmental impact over its useable life and after it.

Queensland Government Chief Procurement Office (2012) advances impact by fair trade and ethical sourcing practices; ensuring that purchases are ethical and support fair trade and that supply chains do not harm in terms of labor standards, promoting workforce welfare, creating employment and training opportunities (more so for disadvantaged groups such as people with disabilities, immigrants), social inclusion, diversity and equality in the supplier market, encouraging a diverse base of suppliers and local sustainability, building and maintaining healthy and strong communities and enhancing wellbeing of local residents by generating local employment.

## **2.6 Benefits of implementing SSCM Practices**

Green supply chain management has emerged as an important organizational philosophy to achieve corporate profit and market share objectives by lowering the environmental risks and impacts while raising the ecological efficiency in the organizations and their partners (Van Hock & Erasmus, 2000).

Keamey (2011) found that 25 percent of suppliers achieved cost savings linked to the emission reduction programs which is one of the initiatives of sustainable supply chains. By driving out inefficiencies from business processes is good business practice and it reduces costs. For



instance, in the service sector, introducing video conferencing reduces energy consumption and emissions associated with travel, and increases productivity translating to reduced costs.

In a study conducted in UK by Walker and Jones (2012), it was found that customers found products from companies which embraced sustainable development to be more appealing to them. 82 percent of the customers preferred to buy products from these companies even if this option was more expensive. This means that by customers buying more it translated to increased sales for these companies which impacted on their bottom line directly.

When incorporating social and environmental issues into a company's corporate behavior the organizational capabilities develop and present potential sources of competitive advantage due to their imperfect imitability by competitors (Gold et al., 2010). Wamalwa (2014) found that companies that embraced and implemented green supply chain strategies in their manufacturing processes gained and sustained greater competitive advantage in terms of goodwill, market share, returns on investment and even profitability.

Environmental sustainability reduces various risks for firms such as the risk of higher costs from fines and damage payments, and the risk of lower sales due to reputation loss and changes in consumer preferences. This in turn affects positively the competitiveness of the firm. For instance, in management of risk, organizations can partner with suppliers to ensure minimum standards in management practices such as minimum hiring age, contracts with workers, health and safety conditions etc. these result in cost efficiency and improved productivity (Hasan, 2012).

Lemmet (2012), in his study on sustainability established that organizations that adopted sustainable practices in sourcing of their raw material, like being ethical, production of their goods and even in the distribution of their products were able to produce better quality products. In turn this made their products more appealing to customers and they were able to attract a large pool of customers from their competitors impacting on their bottom line through increased profits.

Through the adoption of sustainable practices especially concerning employee welfare, health and safety, organizations have been able to create good and conducive working environments for their employees (Mukanga, 2011) this has been able to enhance employee motivation and morale at the work place thus increasing on their productivity and enhancing the performance of the organization.

## **2.7 Challenges of Implementing SSCM Practices**

Organizations face barriers and enablers to sustainable SCM and these can be either internal or external to the organization (Walker and Jones, 2012). Abbasi and Nilsson (2012) divide the challenges for SSCM into five major areas: cost increase, operationalization of sustainable development, changing cultures and mindsets, strains in control and management of uncertainties and tradeoffs, and the complexity of problems.

While costs and revenues are still the main drivers in the development of supply chain, the majority of the research states that it must pay to be sustainable (Abbasi and Nilsson, 2012). The relationship in the supply chain through collaboration in regards to sustainable goals can actually result in a number of cost-effective activities: collaborative waste reduction, cost-effective and environmentally beneficial solutions to production and services problems, and environmentally sound innovation. Conversely, compliance with sustainable regulation obliges the supply chain members to implement possibly costly adaptation processes that can affect their competitiveness and profits as much as they transform production/service methods and systems.

Operationalization of sustainable development is perceived as a challenge in terms of inertia and interpretation. Based on the complex nature of sustainable development the interpretation of what it means in different parts of an organization or supply chain is difficult to comprehend. Lyons (2004) notes that the difficulty of interpretation of sustainable development might be one reason to explain the reason as to why there is perceived lack of priority for sustainability issues in companies at the senior level, and the reluctance to turn intention to action. 'A fear of change connected to difficulties of interpretation, the complexity involved, and the underlying business

logic with its clear focus on financial aspects, all contribute to the inertia in reaching sustainable supply chains' (Abbasi and Nilsson, 2012).

Change of mindset and culture at the organizational (top management as well as other employees), national and international levels is another challenge for sustainable supply chain. For sustainable development to be a natural part of future supply chains, the mind set of people within organizations, supply chains and nations needs to be critical, creative and incorporative of sustainability perspectives and assumptions (Abbasi and Nilsson, 2012).

Murphy et al. (1995) consider “uncertainty as to the degree and nature of government regulations” as an obstacle to establishing environmental policies. The uncertainties related to governmental decisions, consumer demands and competitive advantages and strategies formulated by organizations can be perceived as a challenge to change. Hanafi et al. (2008) refer to quality and timing uncertainty of returned products. This poses great uncertainty about returns and demands especially within a reverse logistics system.

The complexity is inherited in the numerous ways in which supply chain processes and logistics influence society and the environment. There is complexity in terms of how to measure and assess the effects caused different processes and activities within the supply chain for instance, there are several challenges involved in the choice of fuel, the routing of vehicles, the negotiation of environmental contracts etc. (Abbasi and Nilsson, 2012). Tradeoffs between environmental effects and delivery times as well as service levels are other challenging issues. Hasan (2012) highlights the difficulty in measuring logistics environmental performance.

## **2.8 Empirical Studies**

This study proposes that sustainable supply chain practices can be associated with performance outcomes when embraced and adopted by organizations. The literature review has presented the empirical studies to enable a better understanding on the influence of sustainable supply chain practices on organizational performance. Table 2.3 below summarizes some of the existing studies and literature related to SSC practices and humanitarian organizations.

**Table 2.3 Summary of Studies done on Sustainability and Humanitarian Organizations**

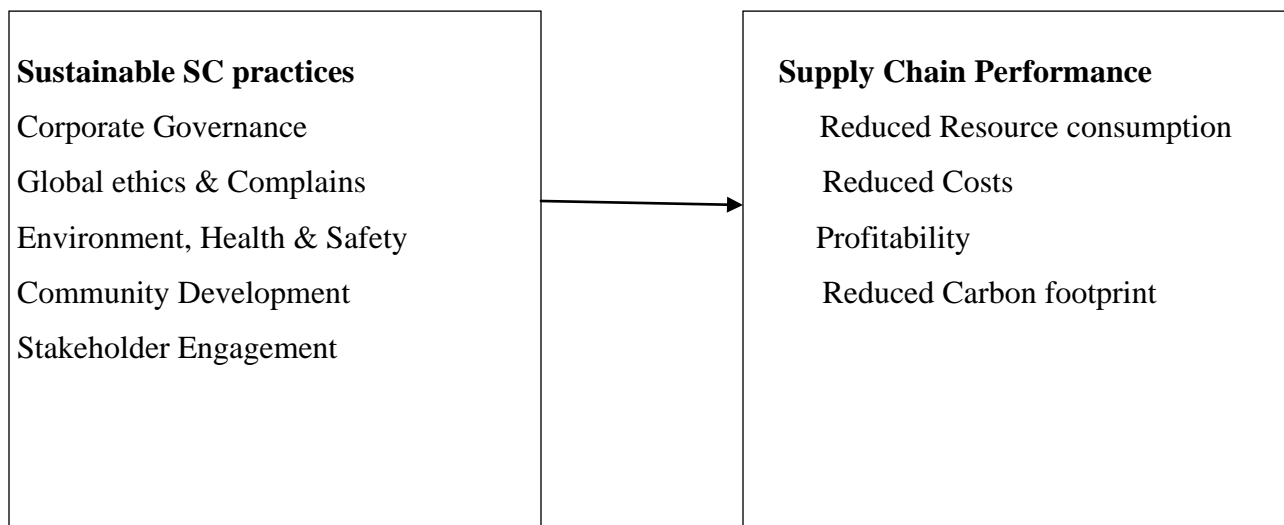
<b>Author(s)</b>	<b>Focus of the Study</b>	<b>Research Findings</b>	<b>Gap</b>
Abditafah (2012)	SCM practices and their impact on performance in humanitarian organizations in Kenya.	Humanitarian Organizations in Kenya have adopted SCM practices to different levels and has impacted on their performance positively.	Failed to look into Sustainable Supply Chain practices in a holistic manner.
Kovacs (2014)	Sustainability Perspectives of humanitarian Supply chains.	There are four perspectives: societal, beneficiary, supply chain and Program.	Did look deeply into these perspectives and their effect on humanitarian organizations Performance.
Kinyua (2013)	SC performance in humanitarian Organizations in Kenya.	Humanitarian Organizations have performing supply chains.	Study only focused on supply chain performance but on sustainable issues.
Walker and Jones (2012)	Sustainable supply chain management across the UK Private sector.	Most UK private companies are committed to Sustainability and have a sustainability policy.	The study was conducted for private sector companies therefore a need to study humanitarian organizations.
Mukanga (2011)	SCM practices in disaster response among international humanitarian Organizations	SCM practices have been adopted by humanitarian organizations to aid in their disaster response	Failed to look into the sustainability aspects of these supply chain practices.

**Source: Author, (2015).**

## 2.9 Conceptual Framework

The conceptual frame work links the independent variables to the dependent variable (Kombo et al, 2006). A variable is a concept which can take different qualitative values (Kothari, 2008). According to Kothari, (2008) a dependent variable is a consequence of the other variable whereas an independent variable is the variable that is antecedent to the dependent variable. An independent variable is the presumed cause, whereas the dependent variable is the presumed effect. These constructs and their relationships are illustrated in the following Table 2.4

**Table 2.4 Conceptual Model**



**Source: Author, (2015).**

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter discusses the methodology that was used in achieving the objectives of the study. It includes the research design, population target, sampling techniques and sample size, data collection as well as data analysis.

### **3.2 Research Design**

This study adopted a descriptive cross-section survey design to investigate the influence of sustainable supply chain practices on the performance of organizations. A descriptive research design helps to ascertain and be able to describe the characteristics of the variables of interest in a situation (Sekaran, 2006). It portrays the characteristics of a particular situation and it has the advantages of accuracy and flexibility (Cauveryetal, 2003). According to Kothari (2008), a survey is a research method for collecting information from a selected group of people using standardized questionnaires or interviews.

### **3.3 Population of the Study**

The target population for this study comprised the 23 UN agencies which are based in Nairobi (See Appendix III). All these UN agencies are formed to serve different purposes in their mission. Most of them are specialized in their product offerings but are involved in procurement activities in one way or another. The study also targeted the Procurement managers or Supply Chain managers working for these Agencies because they were in a better position to respond appropriately on the matters being researched.

### **3.4 Sampling Design**

This study focused on all the 23 UN Agencies in Nairobi and therefore a census was conducted. According to Kothari (2008), a census is the study of every unit in a population. He further asserts that a census provides a true measure of the population. For this study therefore, a census was appropriate since the population was studied as a whole.

### **3.5 Data Collection**

This study utilized primary data. The data was obtained using questionnaires developed by the researcher. The questionnaires contained questions and statements based on the research objectives. It comprised of both closed and open ended questions as they were easier to administer and analyze as well as aided the researcher obtain in-depth responses on the survey (Kothari 2008).

The targeted respondents were the supply chain manager or procurement manager or any other person who held an equivalent position. The questionnaires were dropped and picked up later by the researcher while others were sent using emails. The respondents were requested to fill in the questionnaires in the best way that captured the state of Sustainable Supply Chain Practices in their organizations.

### **3.6 Data Analysis**

Data was prepared for analysis through editing, coding and data entry. Data editing was done to ensure that data was accurate and consistent with the research questions and objectives. Data was then be analyzed using Statistical Package for Social Sciences (SPSS) programs and presented in form of tables to give a representation of research findings and for ease of interpretation. Means and standard deviations were used to show the extent to which UN Agencies have adopted SSC practices and Regression analysis and correlation analysis were used to explain the relationships between SSC practices and Performance Outcomes. Factor analysis was also used to extract the practices which were often used. The final report was then compiled after subjecting data through thorough analysis.

The regression model to be used in analyzing the data will be  $Y = a + b_1X_1 + e$

Where:

Y= Supply Chain Performance

X<sub>1</sub>= Sustainable supply chain practices

e = Error

### 3.7 Summary of Data Collection and Data Analysis

OBJECTIVE	SECTION	ANALYSIS
Firm Profile	A	Descriptive Statistics
<b>Obj 1:</b> The SSCP adopted by UN Agencies and the Extent to which they have been adopted.	B	Descriptive Statistics <ul style="list-style-type: none"> <li>• Mean</li> <li>• Standard deviation</li> </ul>
<b>Obj 2:</b> The relationship between SSC Practices and performance outcomes in UN Agencies.	C	Regression Analysis Factor Analysis
<b>Obj 3:</b> Challenges faced in implementing SSC practices by UN Agencies.	D	Descriptive Statistics <ul style="list-style-type: none"> <li>• Mean</li> <li>• Standard deviation</li> </ul>

**Source: Author, (2015).**



## **CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS**

### **4.1 Introduction**

The study targeted 23 UN agencies, hence a total of 23 questionnaires were administered. The research managed to collect 19 questionnaires representing a response rate of 82.6 percent. The researcher used a developed open questionnaire to obtain the relevant data. This questionnaire was divided into 4 parts. Part I- comprised of the general information about the organizational profile. Part II- comprised several questions about the adoption of sustainable supply chain practices, part III- comprised of the performance outcomes of implementing the practices, part IV- comprised of the challenges of implementing the supply chain practices and part V comprised of the ways of dealing with the challenges.

The findings revealed that, 47.4% of the respondents have been with the organization for three to five years, while 15.8% and 36.8% of the respondents have been with the organization below two years and over five years respectively. This is the product of the UN agencies culture of attracting and retaining the best and hence the extensive experience resource, internal capabilities, the organization enjoy in building its competitiveness as reflected in its supply chain practices.

### **4.2 Extent of Adoption of Supply Chain Practices**

The respondents were asked to indicate the extent to which they adopted various sustainable supply chain practices in their organization using a scale of 1 to 5, where (1)- to a very small extent, (2)- to a small extent, (3)- to medium extent, (4) -to a large extent and (5) -to a very large extent. The Table 4.1 below summarizes the mean scores with a low margin above 3 and average of 4/5 to a very large extent; affirming that the sustainable supply chain practices adopted by the UN agencies to a large extent.

**Table 4.1: Extent of Adoption of Sustainable SCM Practices**

	Mean	Std. Deviation
Climate change commitment safety	4.63	1.86
Ethical sourcing, production and distribution	4.47	.70
Decent employee wages and salaries	4.32	.89
Having a diverse supplier network	4.32	.75
Good working conditions for employees	4.26	.65
Stakeholder engagement	4.21	.85
Employee health and safety	4.21	.79
Ensuring suppliers have a sustainability policy	4.11	.74
Sustainable supply network management	4.00	1.25
Corporate social Responsibility	3.84	.96
Managing products returns	3.79	.71
Life cycle assessment	3.74	1.19
Companywide environmental audits	3.74	1.19
Buying from local suppliers	3.74	1.41
Green purchasing strategies	3.57	1.12
Suppliers' ISO-14000 certification	3.47	1.50
Sustainability labeling schemes	3.37	1.30
Managing waste disposal	3.32	1.34
ISO-14000 certification	3.26	1.48
Recycling of material	2.95	1.31
Reuse of material	2.63	1.07

*Source: Research data, (2015)*

The sustainable supply chain practices that were adopted mostly are stakeholder engagement with a mean 4.21 as indicated by respondents. This agrees with the literature review as an organization can build support for its actions and avoid social backlash through stakeholder engagement. Interacting with stakeholders enables an organization can identify and address their concerns, which reduces the risks and deadlocks that can result from misunderstandings hence the organization will operate in a more stable socio political environment ( Ioannou, 2011).

The respondents also indicated that having a diverse supplier network and buying from local suppliers were among supply chain practices adopted to a large extent by UN agency by a mean of 4.32 and 3.74 respectively. These findings concur with the literature review as it enables businesses to tap into innovation, flexibility, cost savings and support local economic regeneration (Seuring, 2014). The respondents were also asked whether ensuring suppliers have a sustainable policy and corporate social responsibility were supply chain practice adopted by UN agency. The respondents indicated that they were adapted to large extent by mean of 4.11 and 3.84 respectively. This indicates UN agency executes its social responsibility to conduct fair and equitable transactions throughout the supply chain. The respondents indicated the organization had adopted good working conditions for employees, decent employee wages, employee health and safety and ethical sourcing, production and distribution with a mean of 4.26, 4.32, 4.21 and 4.47 respectively. The findings concurs with the literature review in that legal compliance, respecting human rights, labor, safety, and health, as well as environmental protection has led to increased morale of employees, meeting customer needs, reduction in costs and improved efficiency in the overall supply chain value (Seuring and Muller 2008).

Other practices adopted were climate change commitment safety, life cycle assessment, managing products returns, companywide environmental audits, managing waste disposal, sustainability labeling schemes, green purchasing strategies, suppliers' ISO-14000 certification, recycling of material, and reuse of material and ISO-14000 certification. This indicates that UN agencies reduces risks of costs hence improved efficiency and performance. The above results generally agree with the literature data to the effect that organization that adopts sustainable supply chain practices have better performance and hence increase their competitive edge. When incorporating social and environmental issues into a company's corporate behavior the organizational capabilities develop and present potential sources of competitive advantage due to their imperfect imitability by competitors (Gold et al., 2010). According to Wamalwa (2014), companies that embraced and implemented green supply chain strategies in their manufacturing processes gained and sustained greater competitive advantage in terms of goodwill, market share, returns on investment and even profitability.

### 4.3 Performance Outcomes of Implementing Sustainable SSCM Practices

On a scale of 1 to 5, where, (1) -Strongly disagree, (2)- Disagree, (3)- Not sure, (4) -Agree ,(5) - Strongly disagree, the respondents were asked to indicate the performance outcomes of implementing sustainable supply chain practices.

**Table 4.2: Performance outcomes of implementing sustainable supply chain practices**

	Mean	Std. Deviation
Improved corporate image	4.42	.61
Production efficiency	4.37	.76
New market opportunities	4.32	.67
Efficient allocation of resources	4.32	.48
Increased efficiency	4.11	.46
Reduced material costs	4.05	.97
Lower occupational safety expenses	4.00	1.00
Product quality improvement	3.95	.97
Increase in profitability	3.95	.91
Enhance employee motivation	3.95	.78
Increased competitive advantage	3.89	1.05
Better management of risk	3.84	.69
Reduction in carbon footprint	3.79	1.18
ISO certifications	3.74	.81
Cost savings	3.68	1.16
Higher returns on investment	3.58	1.02
Efficient use and management of natural resources	3.58	.96

*Source: Research data, (2015)*

The Table 4.2 above summarizes the mean scores with a low margin above 3 and average of 4/5 agreed; affirming that the implementation of supply chain management practices impacts on the performance of UN agencies. The improved performance is mainly reflected through cost

savings as indicated by respondents who agreed with a mean of 3.68. This indicates UN agency drives out inefficiencies from business processes. The finding agrees with the literature review. Keamey (2011) found that 25 percent of suppliers achieved cost savings linked to the emission reduction programs which is one of the initiatives of sustainable supply chains.

The respondents were also asked to indicate whether implementing sustainable supply chain practices enhances employee motivation. Most of the respondents agreed as shown by a mean of 3.95 in Table 4.2. This shows UN agency top management curb the tendency to micromanage and instead displays the confidence in the ability of their team members and trusts them to do their work efficiently hence promotes trust and loyalty among the employees and encourages better teamwork among them and they develop a sense of ownership towards the company. The finding concurs with literature review because the adoption of sustainable practices especially concerning employee welfare, health and safety, organizations have been able to create good and conducive working environments for their employees (Mukanga, 2011) this has been able to enhance employee motivation and morale at the work place thus increasing on their productivity and enhancing the performance of the organization.

Also the respondents agreed that implementing the practices led to product quality improvement with as evidenced by a mean of 3.95. This concurs with literature review that improved performance is enhanced through sourcing raw materials and being ethical which makes their products more appealing to customers and attracts a large pool of customers from their competitors impacting on their bottom line through increased profits (Walker & Jones 2012). Other benefits associated by implementing sustainable supply chain practices includes new market opportunities, increased competitive advantage, improved corporate image, efficient allocation of resources, production efficiency, and increased efficiency. This indicates that UN agencies come up with innovative strategies to improve their performance. The findings agree with the literature review in that companies that embraced and implemented green supply chain strategies in their manufacturing processes gained and sustained greater competitive advantage in terms of goodwill, market share, returns on investment and even profitability (Wamalwa, 2014). The UN agencies management continuously reviews these practices for relevance given the rapidly changing business environment and its diversification.

UN agencies, just like any other organization that practices sound supply chain practices, as was reflected in the literature review, has grown and sustained its competitive edge and performance, no wonder its market leadership position in the world. There is urgent need to sensitize the internal customers on the criticality of sustainable supply chain management practices but most importantly top management by in driving these initiatives is imperative.

#### **4.4 Challenges faced in implementing Sustainable SCM Practices**

In examining the possible challenges the UN agencies experiences when implementing the SC improvement approaches, the respondents were asked to rate some possible limitations on a scale of 1 to 5, where, (1) Strongly disagree, (2) Disagree, (3) Not sure, (4) Agree (5) Strongly agree. The challenges pointed out by the respondents when implementing supply chain practices includes high overall cost increase, difficulty in operationalizing sustainable development, changing culture and mindset, strains in control, management of demand and supply uncertainties, complexity of problems, staff resistance to adopting the change, funding limitations and delays, procurement delays, lack of support from partners, inability to anticipate disaster and lack of robust supply chains. This concurs with the literature review as change of culture and mindsets hinders the implementation of supply chain practices, staff resistance to adopt the change due fear of change connected to difficulties of interpretation, the complexity involved, and the underlying business logic with its clear focus on financial aspects, all contribute to the inertia in reaching sustainable supply chains (Abbasi and Nilsson, 2012). According to (Abbasi and Nilsson, 2012), high overall costs increase is a challenge due compliance with sustainable regulation that obliges the supply chain members to implement possibly costly adaptation processes that can affect their competitiveness and profits as much as they transform production/service methods and systems.

The respondents indicated that they were not sure whether the following were challenges to the UN agencies. They include competitive pressures, managing tradeoffs, resistance from the communities, lack of commitment among suppliers, consumer desire for lower prices, lack of supportive corporate structure and processes, lack of management support and reliance on traditional accounting methods which do not facilitate recording of triple bottom line measures.

This means top management supports employees in terms of decision making to ensure success in the implementation of sustainable supply chain practices, suppliers ensure they deliver raw materials on time to meet customer demands and needs hence company reputation is maintained, and consumers desire quality goods despite its price. These findings differ with other studies in the literature review.

The Table 4.3 below shows a detailed representation.

**Table 4.3: Challenges faced in implementing sustainable supply chain practices**

	Mean	Std. Deviation
Funding limitations and delays	4.00	1.33
Procurement delays	3.89	1.24
Strains in control	3.89	.66
Management of demand and supply uncertainties	3.84	.96
Staff resistance to adopting the change	3.82	.82
Complexity of problems	3.79	1.03
Lack of support from partners	3.74	1.28
Changing culture and mindset	3.74	.73
Inability to anticipate disaster	3.61	1.29
Difficulty in operationalizing sustainable development	3.58	1.07
Lack of robust supply chains	3.58	1.22
High overall cost increase	3.53	1.02
Competitive pressures	3.26	1.33
Managing tradeoffs	3.21	1.13
Resistance from the communities	3.11	1.24
Lack of commitment among suppliers	3.00	1.33
Consumer desire for lower prices	3.00	1.37
Lack of supportive corporate structure and processes	3.00	1.25
Reliance on traditional accounting methods which do not facilitate recording of triple bottom line measures	3.00	.94
Lack of management support	3.00	1.15

*Source: Research data, (2015)*

#### 4.5 Ways of dealing with the Challenges

In examining the possible solutions when implementing the sustainable supply practices, the respondents were asked to indicate some possible solutions on a scale of 1 to 5, where, (1) Strongly disagree, (2) Disagree, (3) Not sure, (4) Agree (5) strongly agree. Most of the respondents pointed out that they can overcome these challenges by having code of ethics in place, training of staff and top management support and commitment as indicated by a mean of 4.57, 4.47 and 4.68 respectively as indicated in Table 4.4 below. This means that training of staff is important as this will help them be up to date in the new technology required for better improvement in the sustainable supply chain management and practices. Codes of conduct offer an invaluable opportunity for responsible organizations to create a positive public identity for themselves which can lead to a more supportive political and regulatory environment and an increased level of public confidence and trust among important constituencies and stakeholders. Top management support and commitment involves providing resources and training, overseeing implementation at all levels of the organization, and evaluating and revising the policy in light of results achieved. Other possible solutions include community training, having a sustainability policy, and sustainability measurement and audits to enhance public confidence.

**Table 4.4: Ways of dealing with challenges**

	Mean	Std. Deviation
Top management support and commitment	4.68	1.05
Having a code of ethics in place	4.58	.51
Training of employees	4.47	.51
Having a sustainability policy	4.47	.51
Sustainability measurement and audits	4.32	1.17
Community training	4.11	.74

*Source: Research data, (2015)*



#### 4.6 Factor Analysis of Sustainable SCM Practices

Exploratory factor analysis was undertaken for the sustainable supply chain practices adopted by the UN agencies using the principle component analysis extraction method. The total variance explained for sustainable supply chain practices adopted by UN agencies is presented in Table 4.5 Below:

**Table 4.5: Total Variance Explained for Sustainable Supply Chain Practices**

Component	Initial Eigen Values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.554	31.208	31.208	6.554	31.208	31.208
2	3.823	18.206	49.414	3.823	18.206	49.414
3	2.567	12.226	61.640	2.567	12.226	61.640
4	1.770	8.431	70.071	1.770	8.431	70.071
5	1.385	6.594	76.665	1.385	6.594	76.665
6	1.126	5.361	82.026	1.126	5.361	82.026
7	.942	4.488	86.514			
8	.756	3.600	90.114			
9	.593	2.826	92.940			
10	.459	2.184	95.124			
11	.356	1.693	96.818			
12	.232	1.106	97.924			
13	.164	.780	98.704			
14	.159	.757	99.461			
15	.063	.301	99.762			
16	.039	.186	99.948			
17	.010	.049	99.997			
18	.001	.003	100.000			
19	2.025E-16	9.644E-16	100.000			
20	-1.239E-16	-5.898E-16	100.000			
21	-3.532E-16	-1.682E-15	100.000			

Extraction Method: Principal Component Analysis

This is used to reduce the large number of variables into a smaller set of variables (factors), establish underlying dimensions between measured variables and latent constructs, thereby allowing the formation and refinement of theory and provides construct validity evidence of self-reporting scales (Williams, Brown, and Onsman, 2010).

Components with eigen values below 0.5 were excluded and the factor analysis was run again. Six components were obtained which explained 82.026% of the variance. The components extracted includes climate change commitment safety, ethical sourcing, production and distribution, having a diverse supplier network, decent employee wages and salaries, good working conditions for employees and employee health and safety.

Only items with Esigen values ( $>1.0$ ) and factor loadings (*Min* .50) were ideal for Pearson correlation and regression analysis.

**Table 4.6: Rotated Component Matrix<sup>a</sup>**

	Component					
	1	2	3	4	5	6
Buying from local suppliers	.053	-.101	.886	.236	.069	.125
Good working conditions for employees	.103	.033	.733	-.526	.260	-.057
Ethical sourcing, production and distribution	-.057	.218	.828	-.267	-.102	.111
Managing products returns	.532	.066	.680	-.093	-.107	-.299
Recycling of material	.127	.320	-.159	.684	.223	-.304
Reuse of material	.102	.195	-.067	.816	.445	.026
Managing waste disposal	.286	-.056	-.084	.041	.842	.068
ISO-14000 certification	.204	.875	-.033	.234	-.159	-.014
Green purchasing strategies	.312	.470	.331	.210	.408	-.064
Corporate social Responsibility	.441	.674	-.018	-.108	-.086	-.204
Sustainability labeling schemes	.840	-.002	-.071	.134	.207	-.131
Life cycle assessment	.790	.093	.281	.075	.334	.077
Employee health and safety	.504	.505	.101	-.311	.366	-.160
Ensuring suppliers have a sustainability policy	.523	.519	.213	.302	.214	.125
Climate change commitment safety	.185	-.220	.599	-.163	-.149	.327
Decent employee wages and salaries	.011	.021	.149	-.104	.063	.931
Suppliers' ISO-14000 certification	-.042	.907	.036	-.006	-.058	.029
Companywide environmental audits	.092	.918	-.076	-.041	.278	.067
Having a diverse supplier network	-.063	.185	.079	-.836	.255	.034
Sustainable supply network management	.917	.279	-.078	-.035	-.040	.062
Stakeholder engagement	.820	.160	.394	.136	.096	.105

Extraction Method: Principle Component Analysis

Rotation Method: Varimax with Kaiser Normalization

The rotation converged in 6 iterations using Varimax rotation with Kaiser Normalisation. Factor analysis as noted by Pallant (2005) is possible when there are large numbers of related variables. The rotated component matrix after principal component analysis is presented in Table 4.6 Above.

#### 4.7 Correlation Analysis between Sustainable SCM Practices and Organizational Performance

The Karl Pearson's coefficient of correlation (simple correlation) is a measure of the degree of relationship between two variables and is denoted by  $r$ . The Pearson correlation coefficient,  $r$ , can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. As cited in Wong and Hiew (2005), the correlation coefficient value ( $r$ ) range from 0.10 to 0.29 is considered weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong. However, according to Field (2005), correlation coefficient should not go beyond 0.8 to avoid multi co-linearity. The results show that there is high correlation between, sustainable supply chain management practices and organizational performance with a value of 0.684 as shown in Table 4.7 below. The correlation coefficients on the main diagonal are always 1.0, because each variable has a perfect positive linear relationship with itself.

**Table 4.7: Pearson Correlation Coefficients Matrix**

Pearson Correlation	Organizational Performance	Sustainable supply chain practices
Organizational Performance	1.000	.684
Sustainable supply chain practices	.684	1.000

*\*\*.* Correlation is significant at the 0.01 level (2-tailed).

**Source: Research data , ( 2015)**

#### 4.8 Regression Analysis of Sustainable SCM Practices and Organizational Performance.

The regression analysis is concerned with the distribution of the average value of one random variable as the other variables which need not be random are allowed to take different values. A regression model was applied. The regression model specifically connects the average values of y for various values of the x-variables. Basically, the regression analysis is used in two distinct including being a means of considering data taking into account any other relevant variables by adjustment of the random variable and generating mathematical forms to be used to predict the random variable from the other (independent) variables.

The regression model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where;

$\beta_0$  = constant

$\beta_1$  = coefficient

$X_1$  = sustainable supply chain management practices

$\varepsilon$  = error term

**Table 4.8: Regression Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension01	.891 <sup>a</sup>	.793	.745	.194

a. Predictors: (Constant), Sustainable supply chain practices

b. Dependent Variable: Organizational performance

*Source: Research data, (2015)*

The Analysis in Table 4.9 above shows that the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the independent variables)  $R^2$  equals .793, that is, sustainable supply chain practices leaving only .207 per cent unexplained. The P- value of 0.000 (Less than 0.05) implies that the model of organizational performance is significant at the 5 per cent significance. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.891.

**Table 4.9: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.392	6	1.233	19.151	.000 <sup>a</sup>
	Residual	.837	13	.064		
	Total	8.229	19			

- a. Predictors: (Constant), sustainable supply chain practices
- b. Dependent Variable: Organizational performance

*Source: Research data, (2015)*

ANOVA findings (P- value of 0.00) in Table 4.11 show that there is correlation between the predictor's variables (sustainable supply chain practices) and response variable (organizational Performance). An F ratio is calculated to represent the variance between the groups, divided by the variance within the groups. A large F ratio indicates that there is more variability between the groups (caused by the independent variable) than there is within each group, referred to as the error term (Pallat, 2005). Therefore, this is an indication of a better the predictor model. A significant F test indicates that we can reject the null hypothesis which states that the population means are equal (in this case that sustainable supply chain practices do not have an effect on organizational performance.)

**Table 4.10: Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.981	.453		2.165	.006
Sustainable supply chain practices	.237	.160	.198	1.479	.012

a. Dependent Variable: Organizational Performance

*Source: Research data, (2015)*

The established linear regression equation becomes:

$$Y = 0.298 + 0.237 X_1$$

Where

Constant = 0.298, shows that if the level of sustainable supply chain practices are held at constant zero, organizational performance would be 0.298

$X_1 = 0.237$ , shows that one unit change in sustainable supply chain practices results in 0.237 units increase in organizational performance

The Standard Errors are the standard errors of the regression coefficients. They can be used for hypothesis testing and constructing confidence intervals. For example, the standard error of the sustainable supply chain practices coefficient is 0.160. A 95% confidence interval for the regression coefficient for sustainable supply chain practices is constructed as  $(0.237 \pm k 0.160)$ , where  $k$  is the appropriate percentile of the t distribution with degrees of freedom equal to the Error DF from the ANOVA table. The degree of freedom is 13 and the multiplier is 2.00. Thus, the confidence interval is given by  $(0.237 \pm 2.00 (0.160))$ . The Standardized coefficients (Beta) are what the regression coefficients would be if the model were fitted to standardized data, that is, if from each observation we subtracted the sample mean and then divided by the sample SD.

The t statistic tests the hypothesis that a population regression coefficient is  $\beta = 0$ , that is,  $H_0: \beta = 0$ . It is the ratio of the sample regression coefficient B to its standard error. The statistic has the

form (estimate - hypothesized value) / SE. Since the hypothesized value is 0, the statistic reduces to Estimate/SE hence t statistic (0.237)/0.16. Sig. labels the two-sided P values or observed significance levels for the t statistics. The degrees of freedom used to calculate the P value is given by the Error DF from the ANOVA table. The P value for the independent variable tells us whether the independent variable has statistically significant predictive capability. From the table above the significance value is 0.006 which is less than 0.05 hence the independent variable is significant.

This means that Sustainable Supply chain practices adopted by organizations usually will be expected to influence the organizational performance to a great extent in a positive manner. These findings concur with literature review in that companies that embraced and implemented green supply chain strategies in their manufacturing processes gained and sustained greater competitive advantage in terms of goodwill, market share, returns on investment, and even profitability (Wamalwa, 2014).

Supply chain provides a very fertile ground of creating competitiveness and hence the move by some organization to reposition this practices to value chain to reduce costs and enhance quality of goods. Cost savings is achieved through the emission reduction programs which are one of the initiatives of sustainable supply chains. Increase in profitability, new market opportunities, increased competitive advantage and improved corporate image this is possible when companies embrace and implement green supply chain strategies in their processes. Also incorporating social and environmental issues into a company's corporate behavior the organizational capabilities develop and present potential sources of competitive advantage due to their imperfect limitability by competitors.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction**

Examining sustainable supply chain management as defined by Seuring and Muller (2008) as “the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development i.e. economic, environmental and social into account which is derived from customer and stakeholder requirements.. This chapter provides a summary of findings, challenges faced in the implementation of sustainable supply chain practices, performance outcomes of implementing sustainable supply chain practices, adoption of sustainable supply chain practices, conclusion, recommendations, implications of the study on policy, theory and practice, limitation of the study, and suggestion for further research.

### **5.2 Summary of the Findings**

The findings from the study revealed clearly that UN agencies adopt specific sustainable supply chain management practices that are aligned to their corporate strategy in running their value chain functions and these practices have significantly contributed to the performance of the UN agencies and hence creating competitive edge in the very humanitarian organizations by focusing on operational effectiveness and efficiency.

The findings concur with the literature review on other similar studies of other organizations. At this age of very uncertain, sporadic business environment and stiff competition coupled with a very knowledgeable customer, UN agencies are turning inward, tapping as much value from their core competencies to establish a sustainable competitive edge through operational effectiveness and efficiency to improve the organizational performance.

UN agencies adopt various sustainable supply chain management practices to improve their performance. Decent employee wages and salaries, employee health and safety and good working conditions for employees enhances employee motivation and morale at the work place



thus increasing on their productivity and enhancing the performance of the organization. The approach of ethical sourcing, production and distribution ensures better quality products are produced hence their products become more appealing to customers attracting a large pool of customers from their competitors impacting on their bottom line through increased profits. Having a diverse supplier network and ensuring suppliers sustainability policy ensures products are produced on time and delivered to customer on time as this reduces the chances of customer to switch to other competitors in the market.

As earlier indicated, UN agencies has managed to consolidate and sustain its market leadership position over the year and as confirmed by the respondents of this study the adoption of various sustainable supply chain management practices have impacted positively on the organization performance and consequently on building its operational efficiency.

As leaders world over are realizing the value in implementing the sustainable supply chain management practices and now viewing supply chain as strategic imperative, they grapple with serious implementation challenges. In this study, the respondents sites staff resistance to adopt the change due fear of change connected to difficulties of interpretation, the complexity involved, and the underlying business logic with its clear focus on financial aspects, all contribute to the inertia in reaching sustainable supply chains, high overall costs increase is a challenge due compliance with sustainable regulation that obliges the supply chain members to implement possibly costly adaptation processes that can affect their competitiveness and profits as much as they transform production/service methods and systems.

To overcome such challenges, the UN agencies are taking more proactive and strategic approach in handling its activities. For instance, training of staff to be up to date in the new technology required for better improvement in the sustainable supply chain management and practices, having codes of conduct to create a positive public identity which can lead to a more supportive political and regulatory environment and an increased level of public confidence and trust among important constituencies and stakeholders, top management support and commitment to ensure successful implementation of sustainable supply chain management practices.

### 5.3 Conclusions

Based on the findings of the study and the forgoing discussions, it is clear that there exists very strong sustainable supply chain management practices that have contributed to good performance within the supply chain and conversely impacting on the UN agencies overall performance and its competitive strength in the challenging business environment.

From the study findings the study concludes that the adoption sustainable supply chain management practices improves the organizational performance. The improved performance is reflected through cost savings, enhanced employee motivation, product quality improvement and new market opportunities. This shows that sustainable supply chain management practices was well customized process to suit the company change needs as UN agencies very well defined the supply chain practices. This sustainable supply chain management practice would give the company the sustainability and the higher success rate to the change process.

From the findings the study concludes that the sustainable supply chain management practices being adopted by UN agencies Kenya faced various challenges which hindered the effectiveness of the adoption process. The main challenges included; resistance to change from various management cadres due to fear of loss of power, lack of adequate support from the company's partners, , divergent perception between the managers and subordinates about the sustainable supply chain management practices adoption and strains in control. Therefore, the UN agencies faced diverse challenges that slowed down the sustainable supply chain management practices adoption process.

The findings have also led to the conclusion that the UN Agencies can overcome the challenges by training their staff to be up to date with technology, having code of conduct to regulate employee's behaviors and by having top management support to provide resources for successful implementations of sustainable supply chain management practice to improve organizational performance.

## 5.4 Recommendations

Sustainable supply chain performance management practices need to be embraced to help the management team appreciate the direct impact of these initiatives. Management support and further investment and involvement of supply chain practitioners in key business projects will also add value. Adoption of flexible sustainable supply chain practices through appropriate research will help to efficiently and effectively meet the business diverse yet drastic changing needs as well as address challenges arising from a dynamic global business environment. Management should also embrace both qualitative and quantitative aspects in their decision making and more sustainable supply chain management practices integration across the group will yield synergies.

The sustainable supply chain management practice is a heavy matter as evident from the study, clearly reflecting how they marry with corporate strategy to yield improved performance. To achieve effective implementation of the various sustainable supply chain management practices, it requires clear policies to be formulated, implemented and monitored to ensure they remain relevant to the business.

The theory as captured at the literature review stage is such that organization that adopt sound sustainable supply chain management practices outperform those that do not and indeed the gap keep widening as such organizations continue to innovatively implore fresh sustainable supply chain management practices targeting further and faster creation of value given immense competition and pressure from the stake holders such that sustainability of those that do not embrace such best practices is at stake. The outcome of this case study on UN agencies clearly supports this theory.

With the globalization and stiff competition, there is not much time left to slow copying organizations, proactively and innovatively investing in appropriate sustainable supply chain management practices should be the core calling of supply chain managers if their organizations are to grow and be going concerns.

### **5.5 Limitations of the Study**

There was limited access to information. There was lack of response from some of the targeted respondents. Others failed to return the questionnaires claiming that they had no time to fill them, while others argued that it was against the company's policy to disclose any information relating to their organizations making support from their organizations a challenge.

### **5.6 Areas of further Research**

Since this study explored the Sustainable Supply Chain Management Practices at the UN agencies Kenya, the study recommends that; similar studies should be done in other sectors of the Kenyan economy for comparison purposes and to allow for generalization of findings on the Sustainable Supply Chain Management Practices in Kenya.

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**Appendix I**

**LETTER TO RESPONDENTS**

Dear Respondent,

**RE: INTRODUCTION LETTER**

I am an MBA student at the University of Nairobi. I am carrying out a study in the area of Supply Chain: Topic “**Sustainable Supply Chain Practices and the Performance of United Nations in Nairobi, Kenya**”. This questionnaire is designed to gather information on the application of the concept of Sustainable Supply Chain Practices in your organization. This study is being carried out in partial fulfillment of the degree of Master of Business Administration of The University of Nairobi.

All information you disclose will be treated in strict confidence and at no instance will your private details be mentioned in any report. The information will be used for academic purpose only. The results and the final report of the study will be availed to you upon request.

Your co-operation will be highly appreciated.

Yours Faithfully,

Victoria Mwikali Mulwa

Date..... Signature .....

D61/68385/2013

## Appendix II

### QUESTIONNAIRE

#### Introduction

The concept of Sustainable Supply chain practices is an emerging philosophy based on the principle that socially responsible products are not only good for the environment but are important for long term profitability. It is a holistic perspective of supply chain processes that focuses on social environmental and economic systems.

Please indicate where appropriate by putting a tick in the spaces provided or alternatively please write in the space provided.

#### SECTION A: General Information

1. Please state the name of your organization.

.....  
.....

2. Please state your job title.

.....

3. How long have you worked for your organization?

- a) 0 – 2 years      ( )
- b) 3 – 5 years      ( )
- c) Over 5 years      ( )

#### SECTION B: Extent of adoption of Sustainable Supply Chain Practices

4. Has your company adopted sustainable supply chain practices?

- a) Yes              ( )
- b) No                ( )

5. The following are some of the practices adopted by organizations that are committed to sustainability. Please indicate the extent to which the following Sustainable Supply Chain Practices have been adopted in your organization. Please rank in a scale of 1-5; ( where: 1- to a very small extent, 2- to a small extent, 3- to medium extent, 4- to a large extent and 5- to very large extent). Tick as appropriate.

**Sustainable Supply Chain Practices**

**Ranking**

	1	2	3	4	5
Buying from local suppliers					
Good working conditions for employees					
Ethical sourcing, production & distribution					
Managing product returns					
Recycling of materials					
Reuse of materials					
Managing waste disposal					
ISO-14000 certifications					
Green purchasing strategies					
Corporate social Responsibility					
Sustainability labeling schemes					
Life cycle assessment					
Employee health and safety					
Ensuring suppliers have a sustainability policy					
Climate change commitment safety					
Decent Employee wages and salaries					
Suppliers' ISO- 14000 certification					
Companywide Environmental audits					
Having a Diverse supplier network					
Sustainable supply network management					
Stakeholder engagement					

Others ( Please Specify)

.....

.....

.....

6. How often does your organization review its sustainable supply chain practices?

Very Often ( )      Often ( )      Less Often ( )      Not at all ( )

**SECTION C: Performance outcomes of implementing Sustainable Supply Chain Practices**

7. The following are some of the performance outcomes which are experienced by organizations which are committed and have implemented Sustainable Supply Chain Practices. Please indicate the extent to which the following outcomes are experienced in your organization. Please rank in a scale of 1 – 5, (where: 1- strongly disagree, 2- disagree, 3- not sure, 4- agree, 5- strongly agree). Tick as appropriate.

**Performance Outcomes**

**Ranking**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Cost savings					
Enhance employee motivation					
Increase in Profitability					
New market opportunities					
Increased efficiency					
Product quality improvement					
Reduction in carbon footprint					
ISO certifications					
Increased competitive advantage					
Reduced material costs					
Production efficiency					
Lower occupational safety expenses					
Improved corporate image					
Efficient allocation of resources					
Efficient use and management of natural resources					
Higher returns on investment					
Better management of risk					

Others (Please Specify)

.....

.....

.....

**SECTION E: Challenges faced in implementing Sustainable Supply Chain Practices**

8. The following are some of the challenges that are faced by organization in their commitment to implementing sustainable operations. Please indicate the extent to which the following challenges are faced in your organization. Please rank in a scale of 1 – 5,(where: 1- strongly disagree, 2- disagree, 3- not sure, 4- agree, 5- strongly agree). Tick as appropriate.

<b>Challenges</b>	<b>Ranking</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
High overall cost increase					
Difficulty in operationalizing Sustainable development					
Changing cultures and mindsets					
Changing cultures and mindsets					
Strains in control					
Management of demand & supply uncertainties					
Complexity of problems					
Managing tradeoffs					
Staff resistance to adopting the change					
Resistance from the communities					
Funding limitations and delays					
Procurement delays					
Lack of support from partners					
Lack of robust supply chains					
Inability to anticipate disaster					
Lack of commitment among suppliers					
Competitive pressures					
Consumer desire for lower prices					
Lack of supportive corporate structure & processes					
Reliance on traditional accounting methods which do not facilitate recording of triple bottom line measures					
Lack of management support					

Others ( Please specify)

.....  
.....  
.....

9. The following are some of the ways of dealing with the challenges faced in implementing Sustainable Supply Chain Practices. Please indicate the extent to which you think the following aspects can be used in dealing with the challenges you face. Please rank in a scale of 1 – 5, (where: 1- strongly disagree, 2- disagree, 3- not sure, 4- agree, 5- strongly agree). Tick as appropriate.

Ways of dealing with challenges	Ranking				
	1	2	3	4	5
Training of employees					
Having a code of ethics in place					
Top management support and commitment					
Having a sustainability policy					
Sustainability measurement and audits					
Community training					

Others ( Please Specify)

.....  
.....  
.....

10. Would you recommend adoption of Sustainable Supply Chain Practices to other organizations?

a) Yes ( )

b) No ( )

If Yes, Please give reasons.

.....

**THANK YOU!**

## **Appendix III**

### **LIST OF UN AGENCIES IN NAIROBI**

1. United Nations Environment Programme (UNEP)
2. United Nations Human Settlements Programme (UN-Habitat)
3. Food and Agricultural Organization for the United Nations (FAO)
4. International Civil Aviation Organization (ICAO)
5. International Labour Office (ILO)
6. International Maritime Organization (IMO)
7. International Monetary Fund (IMF)
8. United Nations Children's Fund (UNICEF)
9. United Nations Women (UN Women)
10. United Nations Development Programme (UNDP)
11. United Nations Drug Control Programme (UNODC)
12. United Nations Educational, Social and Cultural Organization (UNESCO)
13. United Nations High Commission for Refugees (UNHCR)
14. United Nations Industrial Development Organization (UNIDO)
15. United Nations Office for Project Services (UNOPS)
16. United Nations Population Fund (UNFPA)
17. United Nations Programme on HIV /AIDS (UNAIDS)
18. World Bank
19. World Food Programme (WFP)
20. World Health Organization (WHO)
21. United Nations Centre for Regional Development (UNCRD)
22. United Nations Office for Disaster Risk Reduction (UNISDR)
23. United Nations Office at Nairobi (UNON)

**Source: UNGGC-A, (2015).**